DIRECT TESTIMONY OF

JOSEPH K. TODD

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2012-2-E

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION WITH SOUTH CAROLINA ELECTRIC & GAS COMPANY ("SCE&G" OR "COMPANY").

A. My name is Joseph K. Todd, and my business address is 220 Operation Way, Cayce, South Carolina 29033. I am employed by SCE&G as General Manager, Fossil & Hydro Operations.

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND YOUR BUSINESS EXPERIENCE.

A. I earned a Bachelor of Science Degree in Civil Engineering from Clemson University in 1980. I began my career with Duke Power that same year working as a structural engineer for several nuclear plants. I started working with SCE&G in 1981 as a Structural Engineer for V.C. Summer Nuclear Station in Jenkinsville, South Carolina. In this capacity, I participated in the startup and initial operation of this facility and continued working at V.C. Summer until 1990. In 1990, I

transferred to the Fossil/Hydro division of SCE&G and assumed a project management role for initial work on the Cope project along with a number of other environmental projects. I also served as Assistant Manager of McMeekin Station from 1995 to 1998 before returning to a project management role for several environmental projects including Selective Catalytic Reduction ("SCR") installations at the Williams and Wateree Stations. Subsequent roles included Business Manager of the Company's power operations on the Savannah River Site, and Manager of Fossil/Hydro Outage Planning. I assumed the role of General Manager, Fossil & Hydro Operations in February of 2007. In this position, I report to the Vice President of Fossil Hydro Operations.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to review the operating performance of SCE&G's Fossil/Hydro units and South Carolina Generating Company's ("GENCO") Williams Electric Generating Station ("Williams Station") during the period January 1, 2011 through December 31, 2011 ("Review Period").

Q. PLEASE GIVE A SHORT DESCRIPTION OF SCE&G'S FOSSIL AND HYDRO ELECTRIC FACILITIES.

A. SCE&G operates ten (10) coal-fired fossil fuel units (2,434 Megawatts ("MW")), eight (8) combined-cycle gas turbine/steam generator units (gas/oil

fired, 1,327 MW), sixteen (16) peaking turbines (355 MW), four (4) hydroelectric generating plants (218 MW), and one Pumped Storage Facility (576 MW). In addition, SCE&G owns an electric generator at a biomass cogeneration facility which produces an output of 85 MW using a mixture of wood products and coal as its fuel source. The total net non-nuclear summer generating capability rating of these facilities is 4,995 MW. The ratings stated in this testimony are updated at least on an annual basis.

Q. PLEASE DESCRIBE GENCO AND ITS RELATIONSHIP TO SCE&G.

A. GENCO was incorporated on October 1, 1984, as a SCANA subsidiary. GENCO owns the Williams Station. GENCO sells to SCE&G the entire capacity and output from the Williams Station under a Unit Power Sales Agreement approved by the Federal Energy Regulatory Commission. Hereafter, when I refer to SCE&G's fossil steam plants, I include Williams Station.

Q. HOW MUCH ELECTRICITY WAS GENERATED BY SCE&G IN THE REVIEW PERIOD?

A. In the Review Period, SCE&G generated 25,930,287 megawatt hours ("MWH") of energy. Of this energy, the coal-fired plants generated approximately 49%, the combined-cycle units generated approximately 28%, the nuclear plant generated approximately 19%, the peaking gas turbines and hydro

facilities generated approximately 3%, and the biomass fuel contribution portion of the cogeneration facility generated approximately 1%. Exhibit No. ___ (JKT-1) provides a graphic display of how the Company's generation met our customers' demand for energy during this Review Period.

Q. PLEASE SUMMARIZE THE PERFORMANCE OF THE FOSSIL/HYDRO UNITS.

A. SCE&G's fossil/hydro units operated efficiently and dependably during the Review Period. Moreover, our fossil units received national recognition for their excellent heat rates. These measures will be covered later in my testimony. SCE&G's fossil units also had an 87.59% availability factor and a 3.24% forced outage rate during the Review Period. Additionally, it is worth noting that during the summer peak period, June 1, 2011 through September 30, 2011, SCE&G operated at an availability factor of 96.3%.

Q. PLEASE DISCUSS THE MAJOR PROJECTS UNDERTAKEN DURING SCE&G'S PLANNED OUTAGES FOR THE PERIOD UNDER REVIEW.

A. As part of the Company's maintenance program, SCE&G undertook a number of major projects and maintenance activities during planned outages in this Review Period. A brief description of the major work completed is as follows:

Fossil/Hydro 2011 Planned Major Maintenance Outages

- Canadys Unit 1 came off-line in the fall of 2011 for 4160/480 volt switchgear replacements, turbine valves inspection, low pressure feedwater heaters replacement and superheat outlet header tubes replacement.
- Canadys Unit 3 came off-line in the fall of 2011 for scissor & waterwall tube replacements, main turbine & boiler feed pump turbine controls replacement and condensate polishers replacement.
- Cope Station came off-line in the spring 2011 for final superheat tubes replacement, generator inspection & cooling tower fill replacements.
- Urquhart Combined Cycle Units 5/1 came off-line in the fall of 2011 for turbine valve inspections, generator high voltage bushings replacement and circulating water pumps overhaul.
- Urquhart Combined Cycle Units 6/2 came off-line in the spring 2011 for #6 hot gas path inspection, #2 exciter voltage regulator replacement and #6 compressor rotor replacement.
- Williams Station came off-line in the fall of 2011 for waterwall tubes replacement, high voltage cable replacement and main steam throttle valve maintenance. During startup in late October, a steam leak was observed underneath the turbine. Further inspections revealed cracking in the high energy stainless steel turbine piping. After extensive field inspections and engineering reviews, it was determined that a portion of this piping needed

replacement in order to ensure continued reliable and safe operation of the plant. This type of stainless steel piping is a specialty item with a long lead time for delivery. This work began immediately and resulted in an extension of the Williams Station outage. This outage work was completed on February 8, 2012, with the return of the unit to service.

Q. PLEASE DISCUSS ANY SIGNIFICANT FORCED OUTAGES FOR THE PERIOD UNDER REVIEW.

A. SCE&G's Fossil/Hydro Operations defines a significant forced outage as any forced outage in excess of seven (7) days. By this definition, Fossil/Hydro had two (2) significant forced outages during the Review Period. Canadys 3 came off-line on August 31, 2011, due to a large ash clinker which had formed in the bottom of the boiler. Clinkers are ash that becomes molten and fuses together. A specialty contractor was required to remove the clinker from the boiler through blasting. The unit was returned to availability for service on September 11, 2011.

Urquhart 3 came off-line on October 31, 2011, due to an issue with economizer outlet duct supports. Upon evaluation, we observed that the ductwork had dropped six inches and required rework of adjacent expansion joints along with the duct supports. The ductwork repair was completed on November 21, 2011, but we decided to perform additional scheduled maintenance activities

during this outage, and as a result, the unit was returned to service on December 2, 2011.

Q. WHAT WAS SCE&G'S FOSSIL SYSTEM FORCED OUTAGE RATE FOR THE PERIOD UNDER REVIEW?

A. Fossil/Hydro experienced a system forced outage rate on its fossil units (including combined-cycle units) of 3.24% in the Review Period. The "forced outage rate" is the percentage of the total hours that generating units are forced out of service (for various reasons) compared with the total in service hours plus forced outage hours for a period. SCE&G's system forced outage rate of 3.24% compared favorably to the North American Electric Reliability Council ("NERC") national five year (2006-2010) average for forced outage rates on all units of 5.66%.

Q. PLEASE DISCUSS THE AVAILABILITY OF SCE&G'S FOSSIL PLANTS DURING THE REVIEW PERIOD.

A. SCE&G had an availability factor of its fossil plants (including combined-cycle units) of 87.59% during the Review Period. Availability factor is a measure of the actual hours that the generation units are available (overall readiness to provide electricity) divided by the total hours in the Review Period. Availability is not affected by how the unit is dispatched or by the demand from the system when

connected to the grid. However, it is impacted by the planned and unplanned shutdown hours. For comparison purposes, the NERC national five year (2006-2010) average for availability from all units was 86.61%. Even with the forced outages and the extension of the scheduled outage at Williams Station, SCE&G's availability factor of 87.59% compared favorably to the NERC national five-year average of 86.61%.

Q. PLEASE EXPLAIN "HEAT RATE" AND DESCRIBE THE HEAT RATE OF THE FOSSIL UNITS DURING THE REVIEW PERIOD.

A. Heat rate is a way to measure the thermal efficiency of a power plant. It is the number of British Thermal Units ("Btu") of fuel required to generate one (1) kilowatt-hour ("kWh") of electricity. Simply put, the lower the heat rate, the more efficient the plant.

The coal-fired steam unit average system heat rate for the period January 1, 2011 through December 31, 2011, was 9,948 Btu/kWh. Cope Station had the best heat rate in our system at 9,388 Btu/kWh followed by Williams Station at 9,578 Btu/kWh. For comparison purposes, the *Electric Light & Power* national five year (2006-2010) average for heat rate for all coal-fired units is 10,498 Btu/kWh.

In the 2011 Heat Rate Rankings by *Electric Light & Power*, SCE&G was recognized for having three (3) of its six (6) coal-fired plants listed in the Top 20 most energy efficient coal-fired plants in the nation during calendar year 2010.

McMeekin Station was ranked 8th; Cope Station ranked 10th; and Williams Station ranked 16th. These three (3) plants represent 50% of the SCE&G coal-fired generating capacity.

Q. WHAT IMPROVEMENTS HAS THE COMPANY MADE TO REDUCE EMISSIONS AT ITS COAL-FIRED PLANTS?

A. Since 2007, the Company has undertaken several environmental related projects aimed at reducing emissions at SCE&G's coal-fired plants. The bulk of these projects were required by state and federal regulators to reduce emissions of air pollutants such as Sulfur Dioxide (SO_2) and Nitrogen Oxides (NO_x) from its coal-fired electric generating units. As previously reported, the Company installed wet scrubbers at Williams and Wateree to reduce emissions of SO_2. An additional SCR was installed at Cope Station to reduce NO_x emissions from this facility. Each of these pollution control devices continues to run well.

SCE&G has also invested in a number of other smaller environmental projects and will continue to invest in environmental improvements on its system as required. At present, however, the Company does not have any plans to install additional scrubbers or SCRs on any of its other coal-fired units in its generation fleet.

Q. DURING THE REVIEW PERIOD, DID THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ISSUE ANY FINAL RULES WHICH MAY AFFECT THE OPERATION OF THE COMPANY'S FOSSIL/HYDRO UNITS IN THE FUTURE?

A. Yes. On July 6, 2011, the United States Environmental Protection Agency ("EPA") finalized the Cross State Air Pollution Rule ("CSAPR"), which replaces the EPA's 2005 Clean Air Interstate Rule ("CAIR") and requires states to significantly reduce power plant emissions that contribute to ozone and/or fine particle pollution in other states. Compliance with the CSAPR for SO_2 and annual NO_x reductions was to commence on January 1, 2012, and compliance for ozone-season NO_x reductions to begin on May 1, 2012. However, on December 30, 2011, a federal appeals court stayed the CSAPR pending judicial review and ordered the EPA to continue to administer the CAIR while the court reviews the CSAPR.

On December 21, 2011, the EPA finalized the Mercury and Air Toxics Standards ("MATS"), which requires coal and oil-fired power plants to limit their emissions of heavy metals (*e.g.*, mercury (Hg), arsenic (As), chromium (Cr), and nickel (Ni)) and acid gases (*e.g.*, hydrochloric acid (HCl) and hydrofluoric acid (HF)). Compliance with the MATS is required within three years of the effective date, although a facility may apply for an extension.

SCE&G is studying the effects of CSAPR and MATS on its fossil/hydro units and is committed to complying with all state and federal environmental laws.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Exhibit No. ___ (JKT-1)